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Electrostatic supersolitons in plasmas

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Abstract content
 (Max 300 words)

In 2012 the term “supersoliton” was coined to describe nonlinear electrostatic solitary waves whose electric field signatures exhibited “wiggles” superimposed on the usual bipolar structures found for solitons.

In fact, these structures had been found earlier by us, but not identified in terms of the electric field. Instead, they had been recognised as solitons whose speed exceeded that at which a double layer occurred, the latter speed having previously been regarded as an upper limit on soliton speed.

Considering a number of plasma models relevant to space physics, Sagdeev pseudopotential theory will be used to discuss the characteristics of supersolitons and how they relate to conventional solitons and double layers, as well as their existence domains in an appropriate parameter space.

Attention will also be drawn to their possibly having been observed in satellite experiments.

Apply to be considered for a student award (Yes / No)?

No

Level for award (Hons, MSc, PhD)?

NA

Main supervisor (name and email) and his / her institution

NA

Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

No

Primary author: Prof. HELLBERG, Manfred (UKZN)

Presenter: Prof. HELLBERG, Manfred (UKZN)

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